



# Principally new sources of gas (biogas, methane hydrates) and their impact on global energy

Ivan Weiss, Head of Business development and regulation

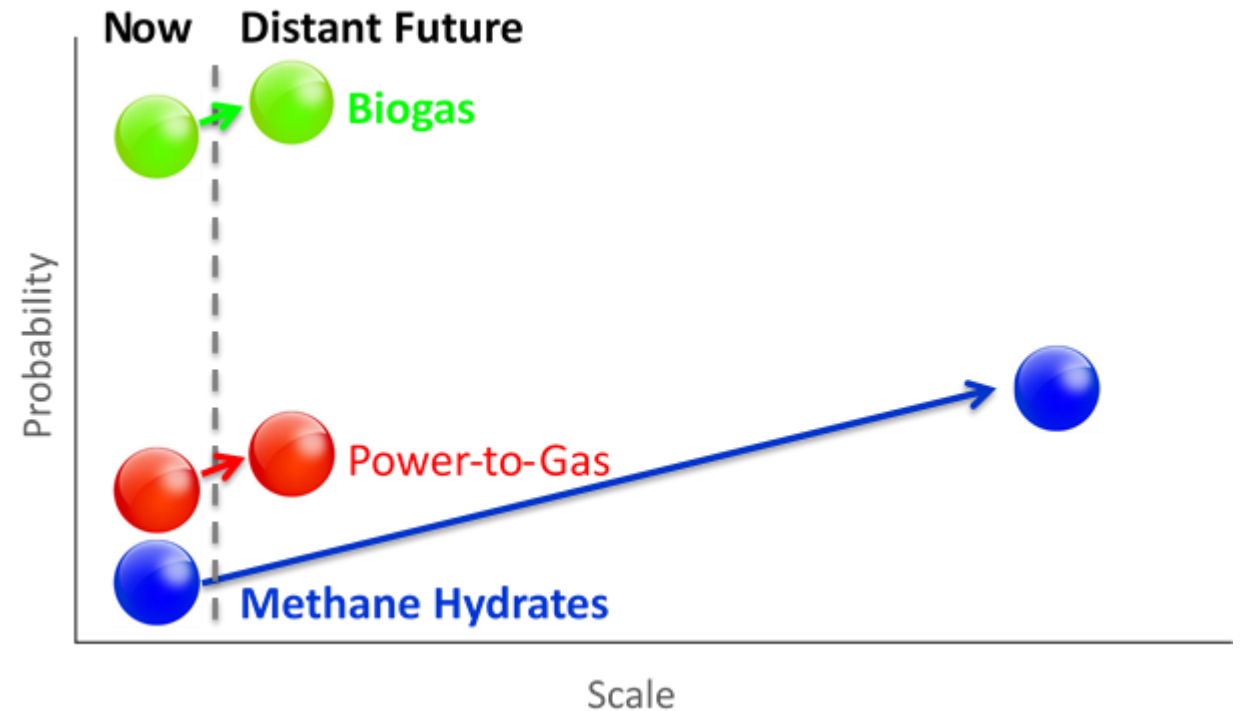
SPP (Slovak gas industry), Slovakia

#WGC2018  
FUELING THE FUTURE



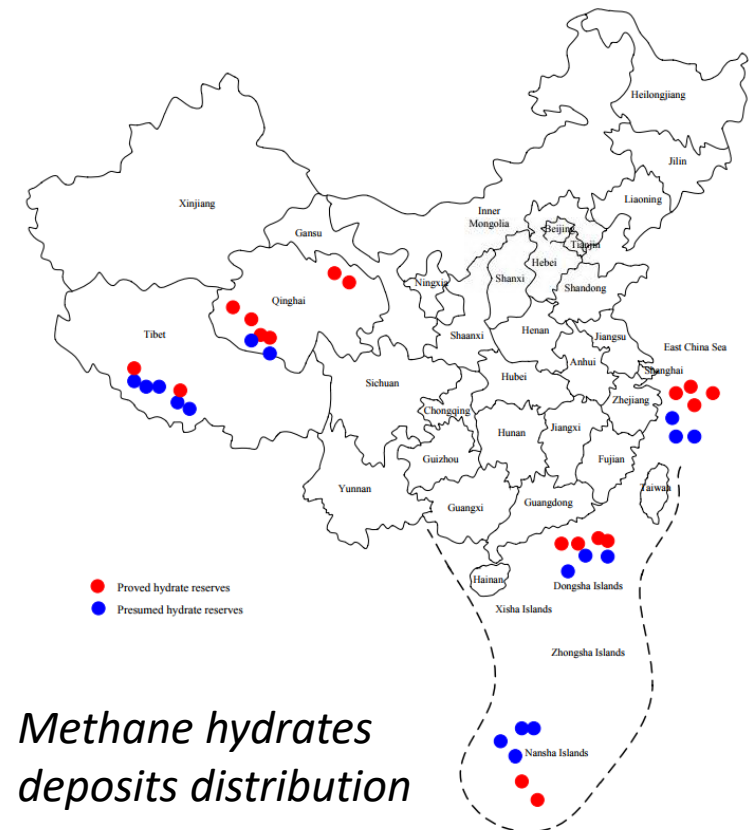
# New natural gas sources - Revolution or evolution?

- Methane hydrates
- Power-to-gas
- Biogas

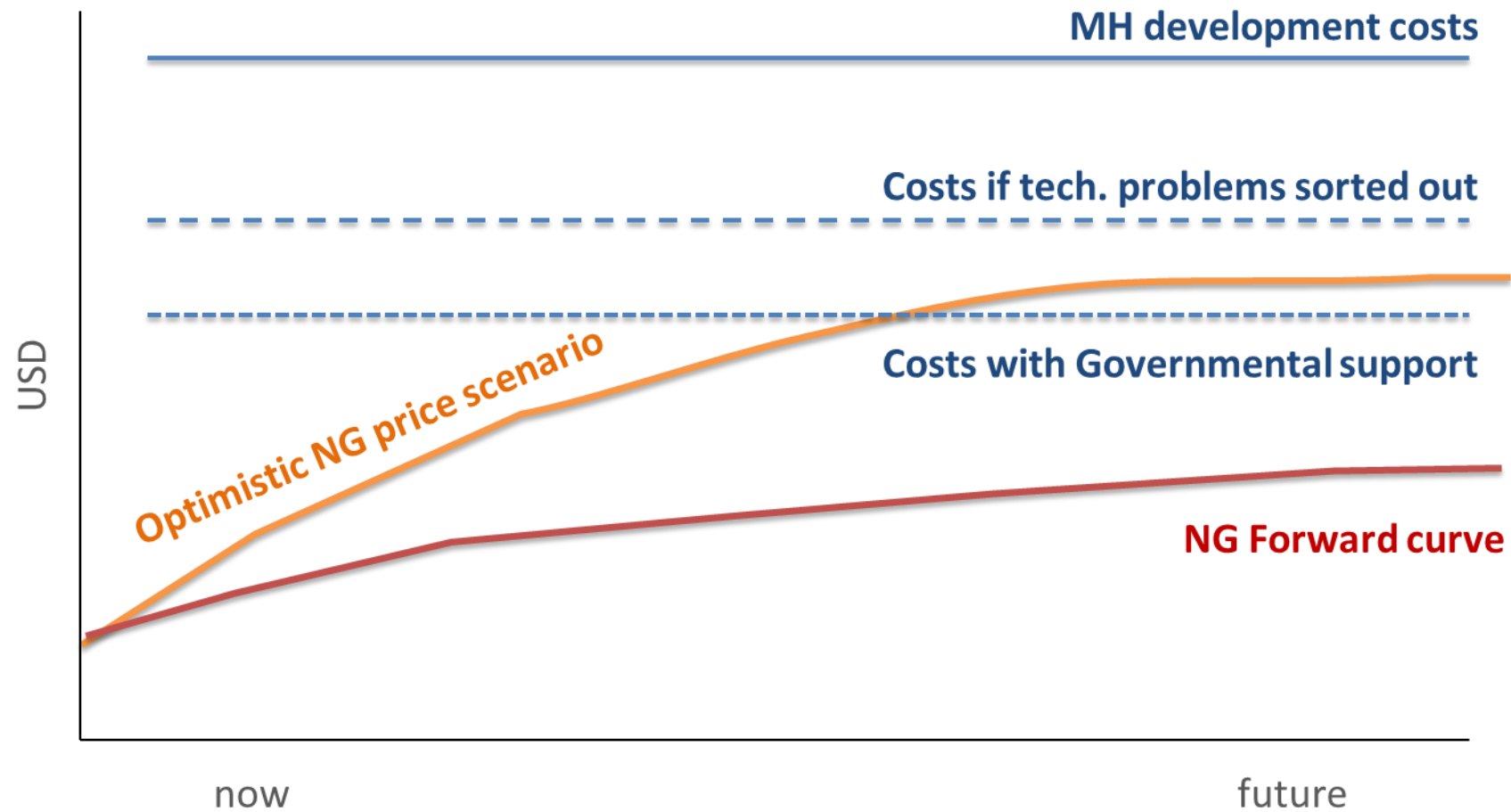


## Methane hydrate (MH) projects

- One of the central research issues in the industry
- Only a few successful projects yet
- Estimated reserves are huge
- MH available in importing countries
- Global supply-balance might change
- Tested production capacities limited
- Environmental issues not solved
- Technologies not yet developed

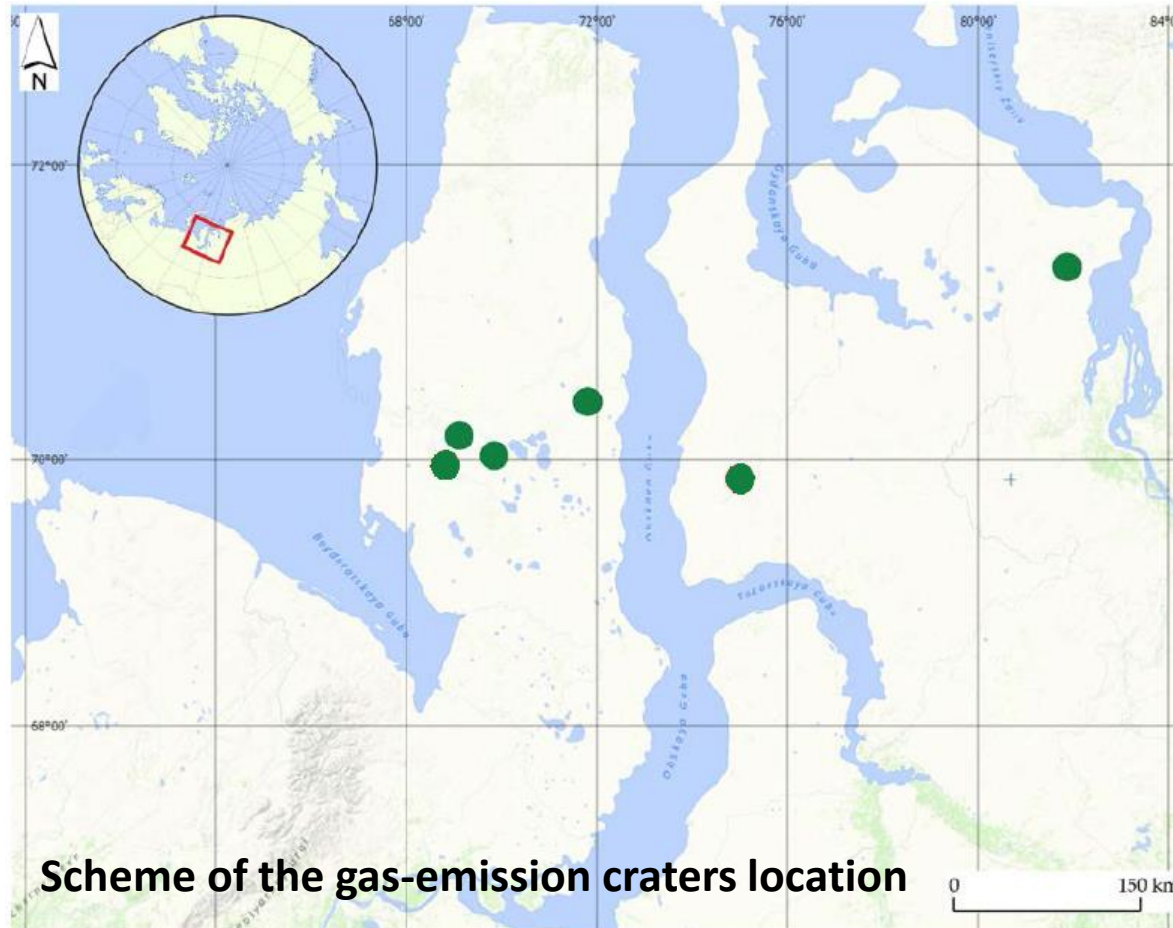


# Possible impact on natural gas prices

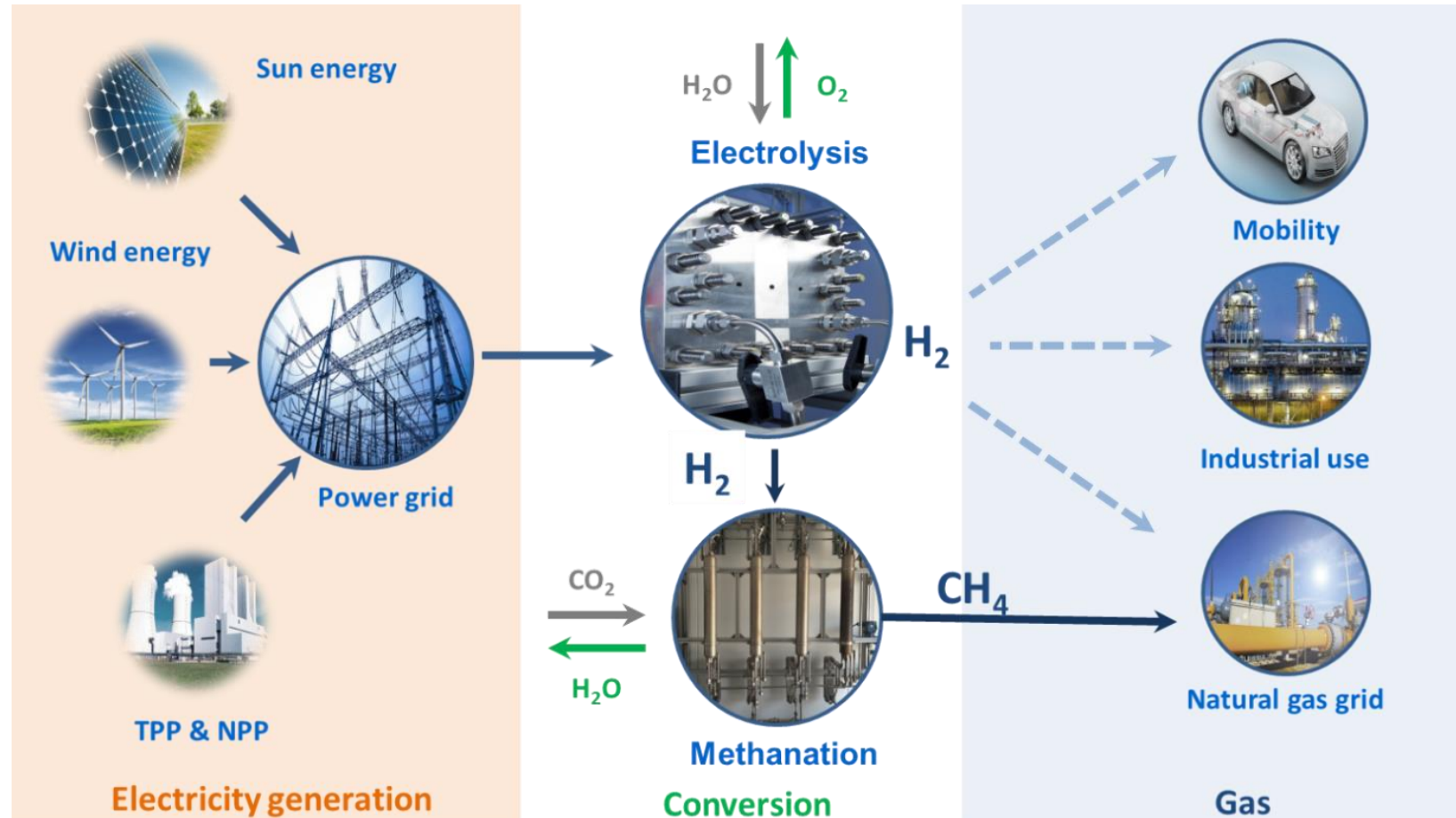




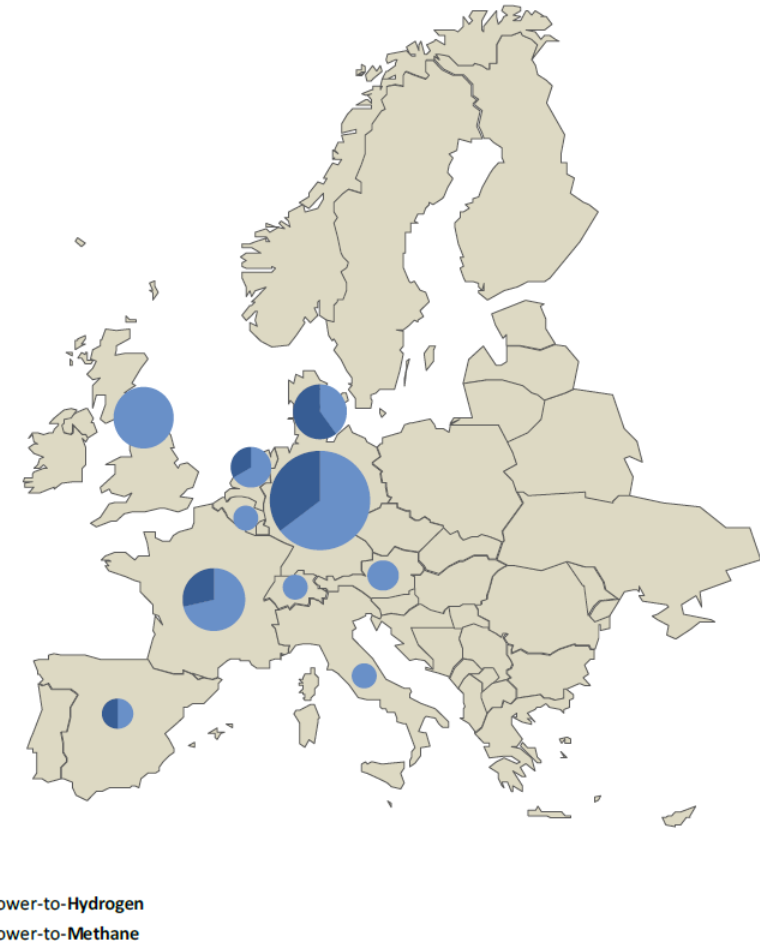
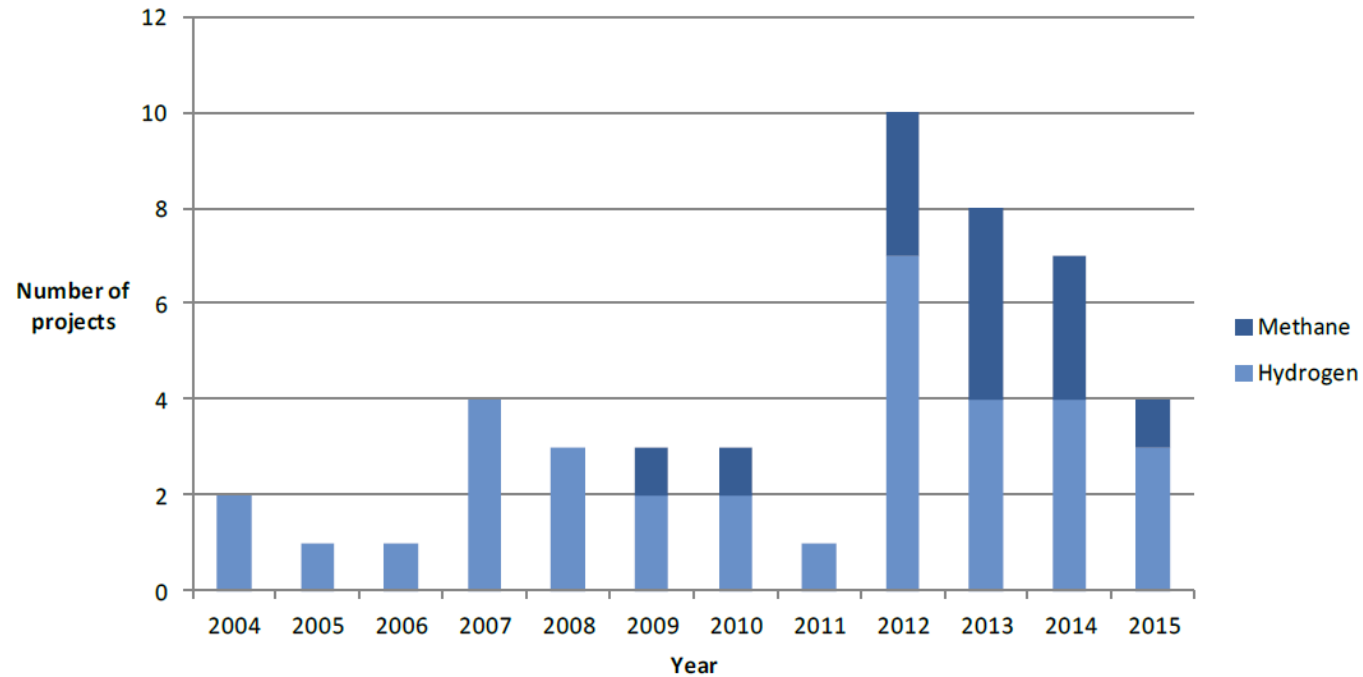
# Methane hydrates in permafrost areas - New opportunities



# Power-to-gas – electric to synthetic

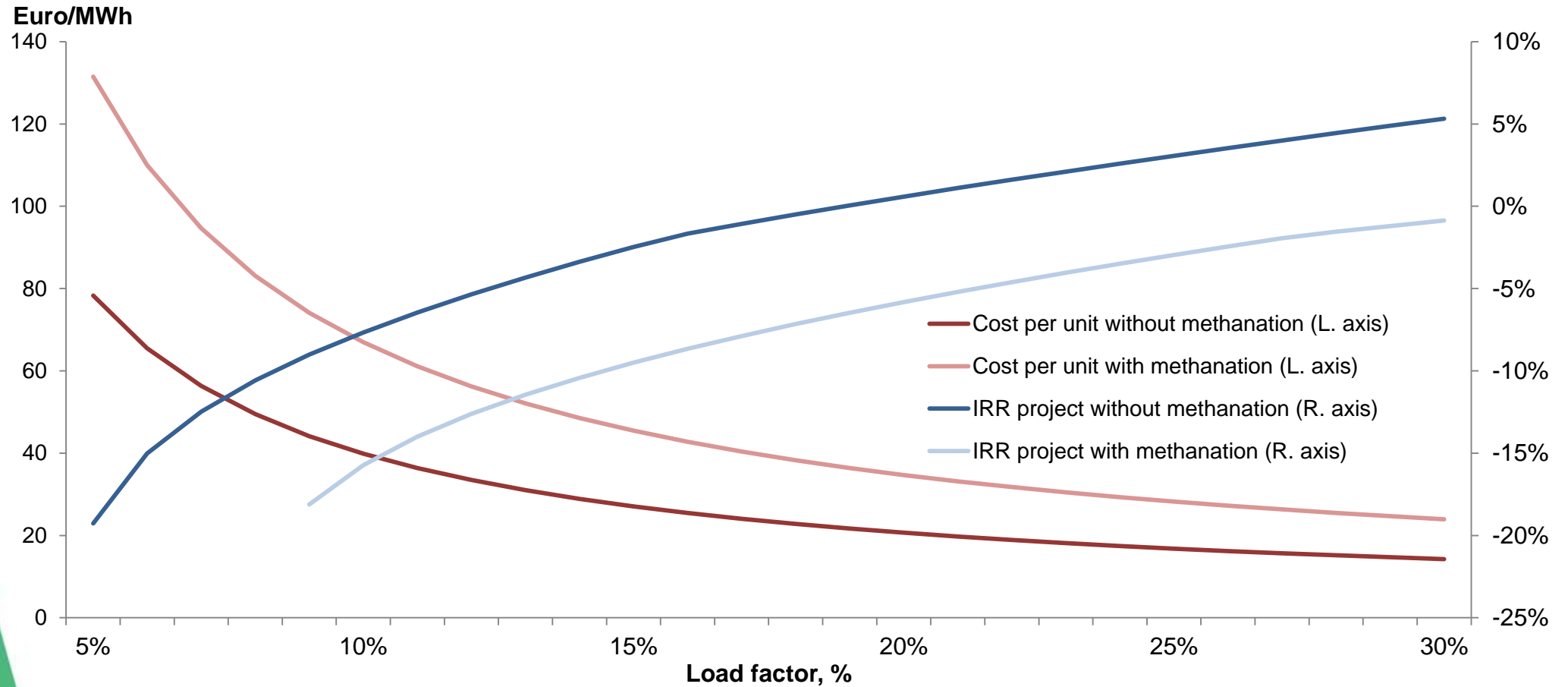


# Recent development of new projects



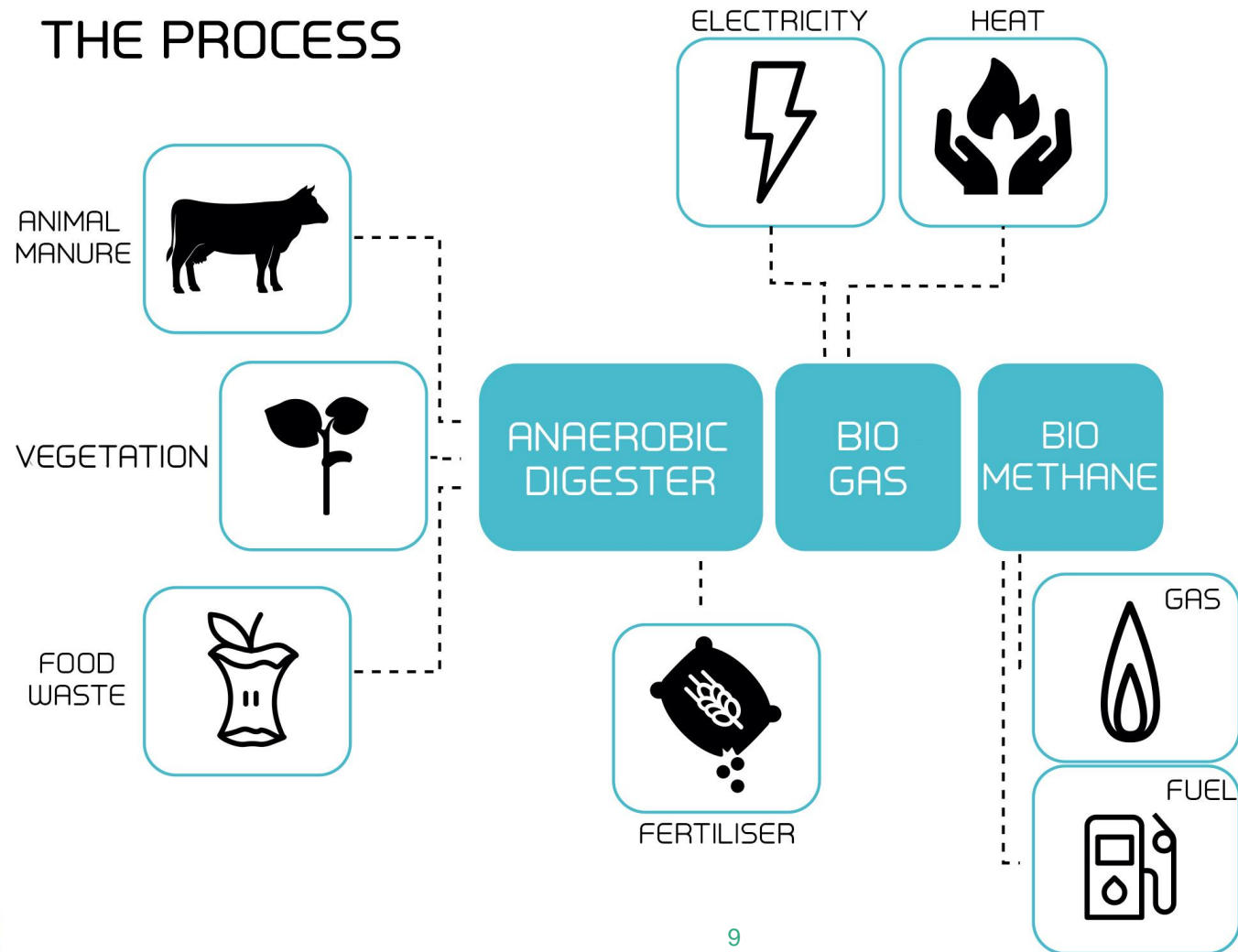
- Limited number of projects
- Economics are challenging

# Economics of large scale plant (>10MW)

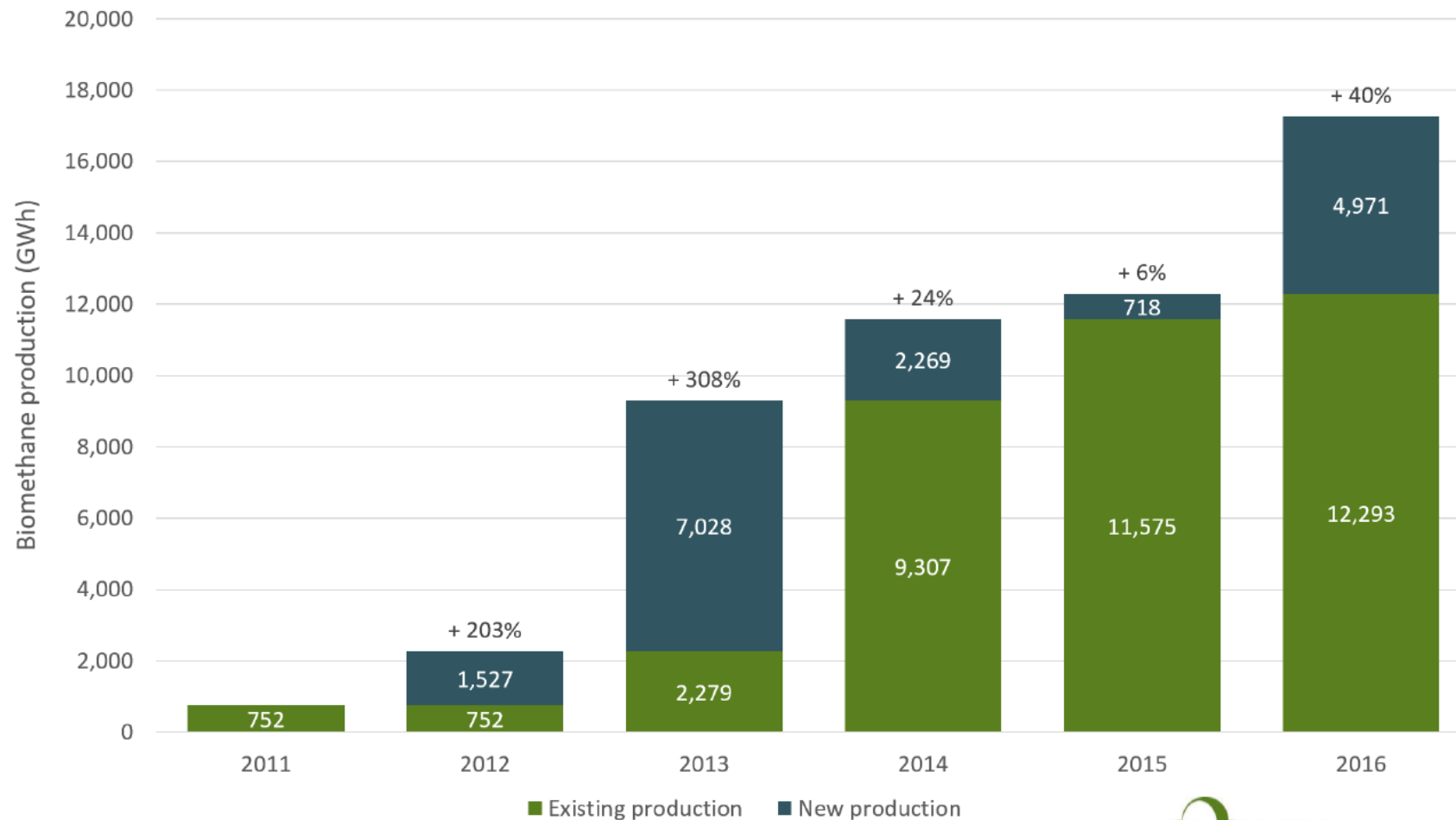




# Biogas production possibilities and its usage



# Biomethane production in the world



Source: EBA Statistical Report 2017

## Biogas potential

- Europe
  - More than 17.000 biogas plants, 14.9 Mtoe
  - EBA sees 10% potential in 2030
  - Only some countries have concrete targets
- USA
  - Currently 2.200 stations with potential at 13.000
  - 3-5% of total market achievable with increasing price
- China
  - 14 Mtoe production, 50 mil. household digesters
  - Potential is several 100 bcm with supporting schemes

## Measures to be taken to promote biogas usage

- Tackle the lack of awareness of biogas benefits;
- Promote positive market conditions;
- Prepare necessary legislation;
- Invest in R&D;
- Prepare supporting schemes where necessary.

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